

**Amendments to the Drawings:**

The attached sheet of drawings includes changes to Fig. 5. This sheet serves as a replacement sheet for originally filed Fig. 5. In Fig. 5, a legend designating FIG. 5 as prior art has been added.

Attachment: Replacement Sheet

**REMARKS**

This paper is submitted in response to the Office action mailed on September 12, 2008. This paper corrects Fig. 5, amends the specification, and amends claims 14-17. Accordingly, after entry of this Amendment and Response, claims 14-17 will be pending.

*I. Drawings*

The Office action objects to the drawings, indicating that Figure 5 should be designated with a legend such as Prior Art. This response corrects Figure 5 and the Applicant respectfully submits that the drawings are not objectionable.

*II. Specification*

The Office action objects to the specification, indicating that the Applicant is required to update the status of the cross-reference. Accordingly, this response amends the specification to include the patent number of the parent application. Applicant respectfully submits that the specification is now in proper form.

*III. Claim Rejections Under 35 U.S.C. § 101*

The Office action rejects claims 14-17 under 35 U.S.C. § 101 as directed to non-statutory subject matter. Claims 14-17 have been amended and the Applicant respectfully submits that claims 14-17 recite statutory subject matter.

*IV. Claim Rejections Under 35 U.S.C. § 103*

The Office action rejects claims 14-17 under 35 U.S.C. § 103(a) as unpatentable over Thompson, "DVM: An Object-Oriented Framework for Building Large Distributed Ada System" pages 179-191 (hereinafter "Thompson") in view of Moore (U.S. Patent No. 6,011,916 (hereinafter "Moore"). The Applicant respectfully traverses the rejections.

For at least the reasoning recited below, the Applicant respectfully submits that the combination of Thompson and Moore does not present a *prima facie* case of obviousness for any of the independent claims. Our arguments will initially focus on independent claim 14, and will subsequently address independent claims 15-17.

A. Claim 14

Among other limitations, claim 14 recites "a bi-directional virtual machine interface for communication between a first support library...and the single virtual machine implementation,...the interface defining virtual machine implementation-dependent operations performed by the virtual machine implementation; wherein the virtual machine interface supports communication between a second support library, capable of replacing

the first support library...without modification of the virtual machine interface or the virtual machine implementation." The Applicant respectfully submits that Thompson and Moore, alone or in combination, do not disclose such features.

**1. The combination of Thompson and Moore does not disclose or suggest the claimed bi-directional virtual machine interface**

Thompson and Moore, alone or in combination, do not disclose or suggest a bi-directional virtual machine interface for communication between a first support library and the single virtual machine implementation wherein the virtual machine interface supports communication between a second support library. The Office action compares the bi-directional virtual machine interface recited in claim 14 with the distributed object service of Thompson, stating that the distributed object service "allows application class to be designed with interfaces supports multiple physical distributions by invoked in one process and execute in another node with the network." (*Office Action dated September 12, 2008; pages 5-6*).

However, the distributed object service disclosed by Thompson is not a bi-directional virtual machine interface for communication between a first support library and the single virtual machine implementation wherein the virtual machine interface supports communication between a second support library. Thompson's distributed object service merely allows an application executing on the distributed virtual machine ("DVM") to access its objects regardless where the objects are located in the physical hardware environment and without awareness of the distributed hardware environment that the application is being executed upon (*Thompson abstract, 1*). The distributed object service is not an interface for the DVM to communicate with a support library, but rather is a feature of the DVM allowing an application to access its objects without regard to what portion of the distributed hardware environment contains the objects (*Thompson 1.1.2*). As the distributed object service is not an interface for the DVM to communicate with a support library, the reference to a distributed object service is not sufficient to disclose or suggest the claim limitation of a bi-directional virtual machine interface for communication between a first support library and the single virtual machine implementation wherein the virtual machine interface supports communication between a second support library.

Thus, Thompson does not disclose a bi-directional virtual machine interface for communication between a first support library and the single virtual machine implementation wherein the virtual machine interface supports communication between a second support library. Moore does not cure the defects of Thompson. Hence, for at least these reasons, claim 14 is patentable under 35 U.S.C. § 103, over the combination of Moore and Thompson.

**2. The combination of Moore and Thompson does not disclose or suggest a virtual machine interface that replaces the first support library without modifications of the virtual machine interface and implementation**

Thompson and Moore, alone or in combination, do not disclose a virtual machine interface that supports communication between a second support library, capable of replacing the first support library without modification of the virtual machine interface or the virtual machine implementation as set forth in claim 14. The Office action asserts that Thompson discloses the above limitations, stating the distributed object service of the DVM "allows application class to be designed with interfaces supports multiple physical distributions by invoked in one process and execute in another node with the network without any modification to the core application" (*Office Action dated September 12, 2008; pages 5-6*). However, the distributed object service does not enable replacing a first support library with a second support library without modification of the distributed object service or the DVM. The distributed object service provided by the DVM allows an application to access its objects regardless where the objects are located in the physical hardware environment and without awareness of the distributed hardware environment that the application is being executed upon (*Thompson abstract, 1*). Thompson teaches that the distributed object service allows classes to be added without modification of the application (*Thompson 1.1.3*). Modification of an application running on a DVM, however, is not the same as modification of the DVM or the distributed object service of the DVM. Thompson does not disclose that the distributed object service enables replacing of a first support library with a second support library without modification of the distributed object service or the DVM.

The Office action also compares the replacing of subprogram variables with access to subprograms disclosed in Thompson to replacing a first support library with a second support library. (*Office Action dated September 12, 2008; pages 5-6*).

However, replacing subprogram variables with access to subprograms disclosed in Thompson is not the same as replacing a first support library with a second support library. The relevant sections of Thompson discuss how the disclosed DVM will be compiled with Ada95 compilers differently than Ada83/87 compilers (*Thompson 4*). Thompson states that the DVM includes the subprogram variable service (allowing for the creation of objects that are pointers to procedures with specific parameter profiles) to provide the features of the access to subprograms available in Ada95 (*Thompson 2.1.1*). The subprogram variable service component of the DVM will not be necessary when the DVM is compiled using an Ada95 compiler because the access to subprograms feature will be part of the DVM (*Thompson 2.1.1, 4*). In short, replacing subprogram variables with access to subprograms relates to features of Ada compilers is unrelated to replacing a first support library with a

second support library, and is insufficient to disclose the limitation of claim 14. Thus, replacing subprogram variables with the access to subprograms feature disclosed in Thompson is not the same or equivalent to replacing a first support library with a second support library.

The Office action correctly concludes that Thompson does not teach that replacing subprogram variables would replace the support libraries (*Office Action dated September 12, 2008; page 6*). The Office action then incorrectly concludes that Moore teaches "replacing the first support library with the plurality of support libraries (replace lib with path to library on local file system, col. 7 lines 30-40)" (*Office Action dated September 12, 2008; page 6*).

Moore discloses an object class that performs input/output operations for a program where the object class uses a first function for the input/output operations when the program is coupled to a Web browser and a second function for input/output operations when the program is not coupled to a Web browser (*Moore, abstract*). In the section cited by the Office action, the first function handles a reference to files by replacing a token with the file path to the library on the web server and the second function handles the reference to files by replacing the token with the file path to the library on the local file system (*Moore, col. 7, lines 30-40*). Moore discloses two functions utilized in different circumstances that look to different file paths for operations in a program referencing files. Thus, like Thompson, Moore does not disclose replacing a first support library with a second support library, and hence claim 14 is patentable under 35 U.S.C. § 103 over Thompson and Moore.

### **3. Conclusion**

For at least these additional reasons, Thompson and Moore, alone or in combination, do not disclose a bi-directional virtual machine interface for communication between a first support library and the single virtual machine implementation, the interface defining virtual machine implementation-dependent operations performed by the virtual machine implementation; wherein the virtual machine interface supports communication between a second support library, capable of replacing the first support library without modification of the virtual machine interface or the virtual machine implementation. As such, the Applicant respectfully submits that claim 14 is patentable under 35 U.S.C § 103(a) over Thompson in view of Moore.

### **B. Claim 15**

Similarly to claim 14 and as discussed in subsections A(1) and A(2) above , claim 15 recites "a virtual machine implementation uses a first support library implementation wherein the first support library implementation can be replaced by a second support library implementation without modifying the virtual machine implementation, and wherein a bi-directional virtual machine interface enables communication between the virtual machine implementation and the first support library and communication between the virtual machine

implementation and the second support library." For at least the reasons set forth above with respect to claim 14, the Applicant respectfully submits that and Moore, alone or in combination, do not disclose such features and that claim 15 is patentable under 35 U.S.C. § 103.

C. Claim 16

Similarly to claims 14 and 15, claim 16 recites "the virtual machine implementation having a virtual machine interface defining a number of operations performed by the virtual machine implementation...whereby the virtual machine interface defines operations that are virtual machine implementation-dependent...and wherein the virtual machine interface with a first support library and the virtual machine implementation, and the virtual machine implementation is suitable for a use in conjunction with a plurality of support libraries that are arranged to conform to the virtual machine interface, whereby the first support library can be replaced by a second support library without altering the virtual machine interface or virtual machine implementation." For at least the reasons set forth above with respect to claim 14, the Applicant respectfully submits that and Moore, alone or in combination, do not disclose such features.

D. Claim 17

Similarly, claim 17 recites "a virtual machine interface that facilitates communications between a first support library and the virtual machine implementation,...the virtual machine interface defines operations that are virtual machine implementation dependent; and...a second support library from the plurality of support libraries that has library functions with at least some of the library functions able to call virtual machine implementation-dependent functions that perform virtual machine implementation-dependent operations, the second support library able to conform to the virtual machine interface." For at least the reasons set forth above with respect to claim 14, the Applicant respectfully submits that and Moore, alone or in combination, do not disclose such features.

V. Conclusion

The Applicant thanks the Examiner for his thorough review of the application. The Applicant respectfully submits the present application, as amended, is in condition for allowance and respectfully requests the issuance of a Notice of Allowability as soon as practicable.

This Amendment is submitted contemporaneously with a petition for a one-month extension of time in accordance with 37 CFR § 1.136(a). Accordingly, please charge Deposit Account No. 04-1415 in the amount of \$130, for a 1-month extension of time fee. The Applicant believes no further fees or petitions are required. However, if any such

petitions or fees are necessary, please consider this a request therefor and authorization to charge Deposit Account No. 04-1415 accordingly.

If the Examiner should require any additional information or amendment, please contact the undersigned attorney.

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Respectfully submitted,



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